```
#Part 1 Lucas Goedde

1.
expr = re.compile(' A{2,5} ')
string = ' AA '

test = re.match(expr,string)

if (test):
    print(test.group())

else:
    print("Pattern not found")

2.
expr = re.compile('\d*\.\d+')
string = '12.35 3000444.45'

test = re.sub(expr,'float',string)

if (test):
    print(test)

else:
    print("Pattern not found")

3.
expr = re.compile('\d*\.\d+')
string = '12.35 355.55'

test = re.subn(expr,'float',string,count=0)

if (test):
    print(test)


else:
    print("Pattern not found")

4.
expr = re.compile(r'[0-9]+')
string = '10 20 30'

test = re.findall(expr,string)
total = 0
for item in test:
    total+= int(item)

avg = total/len(test)
print(avg)

5.
expr = re.compile(r'(EE364)')
string = 'EE364 EE364'

test = re.sub(expr,'EE461',string,1)
print(test)

6.
```

```python
expr = re.compile("^((00[0-9]|0[1-9][0-9]|[0-9]|[1-9][0-9]|1[0-9]{2}|2[0-4]
[0-9]|25[0-5])\.){3}(00[0-9]|0[1-9][0-9]|[0-9]|[1-9][0-9]|1[0-9]{2}|2[0-4]
[0-9]|25[0-5])$")
string = '010.10.10.255'

test = re.match(expr,string)

if(test):
    print("Valid IP Address")

else:
    print("Error: Not a valid IP Address")
```

7.
re.search("e", input, re.I): search the string in variable input for e, regardless
of the case(E or e)
re.match("(.*)(is a)(.*)", input): match string in input for (anything and
everything) is a (anything and everything)
re.match("(?P.*)(?Pis a)(?P.*)", input): Does the same thing as above, but with
grouping
re.search("(I){1}(like){10,}(you){1,2}", input) search for "I like(at least 10
times) you(1 or 2 times)